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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/435,293	11/05/99	RALEIGH G	CISCP601C2

EXAMINER	
FAN, C	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/435,293	Applicant(s) RALEIGH ET AL.	
	Examiner Chieh M Fan	Art Unit 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 November 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *224-244* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *225,226,229,236,237,241 and 242* is/are allowed.

6)☒ Claim(s) *224,227,228,230,233-235,238-240,243 and 244* is/are rejected.

7)☒ Claim(s) *231 and 232* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 November 1999* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2,6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to because element 111 in Fig. 14 should be labeled as "Receive Antenna #M_R". Correction is required.

Specification

2. The disclosure is objected to because of the following informalities: on page 1, line 7 of the specification, the applicants should insert "is a continuation of application Ser. No. 08/921,633, filed Aug. 27, 1997, now US Patent 6,144,711, which" in front of "claims priority".

Appropriate correction is required.

Claim Objections

3. Claims 231 and 232 are objected to because of the following informalities: they are identical. One of the claims needs to be canceled. Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claim 238 is rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 16 and 18 of prior U.S. Patent No. 6,144,711. This is a double patenting rejection.

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claim 239 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16 and 18 of U.S. Patent No. 6,144,711. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitation of said weighting being the same for each input bin of said time domain substantially orthogonalizing procedure is obvious since the at least two spatial directions are the same for all of the output bins.

8. Claims 227 and 228 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16 and 18 of U.S. Patent No. 6,144,711. Although the conflicting claims are not identical, they are not patentably distinct from each other because the limitations of claims 227 and 228 may

be obtained by reversing the limitation of claims 16 and 18 of U.S. Patent No. 6,144,711, and it is well known in the art that a transmitter performs reversing functions of a receiver.

9. Claim 235 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 16 of U.S. Patent No. 6,144,711. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is well known in the art that the outputs of an receiving antenna array are multiplied by a plurality of weighting chosen to minimize the interference from unintended transmitters (official notice is taken here). Therefore, the limitation of said weighting are chosen to minimize interference from undesired transmitters is obvious.

10. Claims 240, 243 and 244 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 16, 19, 21 and 23 of U.S. Patent No. 6,144,711 in view of Shelswell et al. (US Patent 5,610,908).

Regarding claims 243 and 244, claims 16, 19, 21 and 23 of U.S. Patent No. 6,144,711 recite all the limitation except the decoding procedure is based on one of convolutional coding, trellis coding, Reed-Solomon coding, CRC coding, block coding, turbo coding, and interleaving. However, Shelswell et al. teach that, in an OFDM system, each of the inputs (12, 12a, 12 b in Fig 1) is convolutional encoded and interleaved (see 14 and 16 in Fig. 1, also see 116 and 114 in Fig. 4) before sent to the IFFT block. Therefore, it would have been obvious to one of ordinary skill in the art at

the time the invention was made to incorporate the convolutional encoder and an interleaver, as taught by Shelswell, into the system of US Patent 6,144,711 to reduce bit error rate. Further, the use of convolutional coding, trellis coding, Reed-Solomon coding, CRC coding, block coding, turbo coding, and interleaving to reduce the bit error rate is well known in the art. Therefore, specifying the coding procedure is one of convolutional coding, trellis coding, Reed-Solomon coding, CRC coding, block coding, turbo coding, and interleaving would not be considered an inventive step.

Regarding claim 240, each of the inputs 12, 12a and 12b in Fig. 1 of Shelswell is considered as signal from different spatial direction.

11. Claim 224 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 239 of copending Application No. 09/435,246. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is well known in the art that the outputs of an receiving antenna array are multiplied by a plurality of weighting chosen to minimize the interference from unintended transmitters (official notice is taken here). Therefore, the limitation of said weighting are chosen to minimize interference from undesired transmitters is obvious.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 230, 233 and 234 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 239-243 and 245 of copending Application No. 09/435,246 in view of Shelswell et al. (US Patent 5,610,908).

Regarding claims 233 and 234, claims 239-243 and 245 of copending Application No. 09/435,246 recite all the limitation except the decoding procedure is based on one of convolutional coding, trellis coding, Reed-Solomon coding, CRC coding, block coding, turbo coding, and interleaving. However, Shelswell et al. teach that, in an OFDM system, each of the inputs (12, 12a, 12 b in Fig 1) is convolutional encoded and interleaved (see 14 and 16 in Fig. 1, also see 116 and 114 in Fig. 4) before sent to the IFFT block. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the convolutional encoder and an interleaver, as taught by Shelswell, into the system of US Patent 6,144,711 to reduce bit error rate. Further, the use of convolutional coding, trellis coding, Reed-Solomon coding, CRC coding, block coding, turbo coding, and interleaving to reduce the bit error rate is well known in the art. Therefore, specifying the coding procedure is one of convolutional coding, trellis coding, Reed-Solomon coding, CRC coding, block coding, turbo coding, and interleaving would not be considered an inventive step.

Regarding claim 230, each of the inputs 12, 12a and 12b in Fig. 1 of Shelswell is considered as signal from different spatial direction.

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 238 and 239 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 238 recites the limitation "said at least two spatial directions" in the last line of the claim. There is insufficient antecedent basis for this limitation in the claim.

Allowable Subject Matter

15. Claims 225, 226, 229, 236, 237, 241 and 242 are allowed.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Liu et al. (US Patent 5,905,721), Carnet et al. (US Patent 5,537,435) and Chow et al. (US Patent 5,479,447). Copies of these references are not

attached since they have been sent to the applicants in the parent application 08/921,633.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chieh M Fan whose telephone number is (703) 305-0198. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM, Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (703) 305-4714. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

Chieh M Fan
Examiner CF
Art Unit 2634

cmf
September 17, 2001

STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
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